



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

m/t

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,410	11/21/2003	Hiroshi Nakajima	96790P444	3348
8791	7590	04/06/2007	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030			BLOOM, NATHAN J	
			ART UNIT	PAPER NUMBER
			2624	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/06/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/719,410	NAKAJIMA ET AL.
	Examiner	Art Unit
	Nathan Bloom	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 9/24/2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-10 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/21/2003.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakajima (US 6094499).

Instant claim 1: A pattern collation apparatus for collating a registration pattern with a collation pattern, comprising:

first collation means for executing collation between the registration pattern and the collation pattern on the basis of a correlation value between the patterns [Fig 27 item 169, Fig 2. *As can be seen by Fig 2. which is the apparatus disclosed by Nakajima that is identical to that disclosed by applicant in Fig. 1, further disclosed in column 24 lines 1-56*];

second collation means for executing collation between the registration pattern and the collation pattern on the basis of a feature parameter defined in advance [Fig 27 item 170, Fig 28 item 170-6, *as implemented by apparatus of Fig. 2, further disclosed in column 24 lines 1-56*]; and

collation determination means for determining that the registration pattern coincides with the collation pattern by using at least one of a collation result by said first collation means and a collation result by said second collation means [Fig. 28 items 170-0, 170-7 through 9, *as implemented by apparatus of Fig. 2 item 20-1 as disclosed in column 15 lines 46+ and column 16 lines 1-23, and further disclosed in column 24 lines 1-56*].

Instant claim 2: An apparatus according to claim 1, wherein when at least one of the collation result by said first collation means and the collation result by said second collation means indicates coincidence between the registration pattern and the collation pattern, said collation determination means determines that the registration pattern coincides with the collation pattern. *[Fig. 28 items 170-0, 170-7 through 9, as implemented by apparatus of Fig. 2 item 20-1 as disclosed in column 24 lines 1-56].*

Instant claim 3: An apparatus according to claim 1, wherein when the collation result by said first collation means indicates coincidence between the registration pattern and the collation pattern, said collation determination means determines that the registration pattern coincides with the collation pattern without executing collation by said second collation means. *[Fig. 27 item 169 and Fig. 28 items 170-0, 170-7 through 9, as disclosed in column 24 lines 1-56]*

Instant claim 4: An apparatus according to claim 1, wherein when the collation result by said second collation means indicates coincidence between the registration pattern and the collation pattern, said collation determination means determines that the registration pattern coincides with the collation pattern without executing collation by said first collation means. *[Fig. 21, 169 and 170-6 of Fig 27-28, column 20 lines 25-34 and column 24 lines 9-24. Either correlation means listed by Nakajima can be considered the first or second collation means as this annotation is arbitrary, and these means are understood to be interchangeable by one of ordinary skill in the art.]*

Instant claim 5: An apparatus according to claim 1, wherein
said apparatus further comprises execution order designation means for allowing designation of
an execution order of collation by said first collation means and collation by said second
collation means [*170-0 of Fig. 28 decides what order of execution is to be performed, if Yes
(coincidence) then the second collation is not performed if No (not coincidence) then the second
collation is performed*], and
when a collation result by collation means which is designated by said execution order
designation means to be executed first indicates coincidence between the registration pattern and
the collation pattern, said collation determination means determines that the
registration pattern coincides with the collation pattern without executing collation by collation
means which is designated to be executed later [*Fig. 28, if coincidence then second collation
means skipped*].

Instant claim 6: An apparatus according to claim 1, wherein said apparatus further comprises
image inspection means for inspecting an image of the collation pattern [*170-0 of Fig. 28
inspects by comparing a value with a threshold and then based on this decides what order of
execution is to be performed, if Yes (coincidence) then the second collation is not performed if
No (not coincidence) then the second collation is performed*], and
execution order designation means for designating an execution order of collation by said first
collation means and collation by said second collation means on the basis of an inspection result
of the image of the collation pattern by said image inspection means, and when a collation result

by collation means which is designated by said execution order designation means to be executed first indicates coincidence between the registration pattern and the collation pattern, said collation determination means determines that the registration pattern coincides with the collation pattern without executing collation by collation means which is designated to be executed later [*Fig. 28, if coincidence then second collation means skipped*].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7-10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima (US 6094499) in view of Reismann (US 7142699).

Instant claim 7: A pattern collation apparatus comprising:

registration Fourier pattern data generation means for executing N-dimensional discrete Fourier transform for N-dimensional ($N \geq 1$) pattern data of a registration pattern to generate registration Fourier N-dimensional pattern data [*Nakajima: 162 and 165 of Figures 16, 23-25, and 27*];

collation Fourier pattern data generation means for executing N-dimensional discrete Fourier transform for N-dimensional ($N \geq 1$) pattern data of a collation pattern to generate collation Fourier N-dimensional pattern data [*Nakajima: 163 and 166 of Fig 16, 23-25, and 27*];

first amplitude suppression means for executing amplitude suppression processing for the registration Fourier N-dimensional pattern data [*Nakajima: 171 of Fig. 23-24, 177 of Fig. 25*]; second amplitude suppression means for executing amplitude suppression processing for the collation Fourier N-dimensional pattern data [*Nakajima: 172 of Fig. 23-24, 178 of Fig. 25*]; first polar coordinate system transformation means for obtaining a polar coordinate system from a coordinate system of the registration Fourier N-dimensional pattern data that has undergone the amplitude suppression processing by said first amplitude suppression means [*Nakajima: 167 of Fig. 16, 23-25, and 27*]; second polar coordinate system transformation means for obtaining a polar coordinate system from a coordinate system of the collation Fourier N-dimensional pattern data that has undergone the amplitude suppression processing by said second amplitude suppression means [*Nakajima: 168 of Fig. 16, 23-25, and 27*]; first collation means for collating, by an amplitude suppression correlation method, the registration Fourier N-dimensional pattern data of the polar coordinate system obtained by said first polar coordinate system transformation means with the collation Fourier N-dimensional pattern data of the polar coordinate system obtained by said second polar coordinate system transformation means [*Nakajima: 169 of Fig. 16, 23-25, and 27*]; rotational shift amount measurement means for obtaining a rotational shift amount between the pattern data from a position of a correlation peak obtained in a collation process by said first collation means [*Nakajima: lines 59-67 of column 4, Fig.*]; rotational shift correction means for executing rotational shift correction for one of the registration pattern and the collation pattern on the basis of the rotational shift amount obtained

by said rotational shift amount measurement means [*Nakajima: lines 59-67 of column 4*]; second collation means for, after rotational shift correction by said rotational shift correction means, collating the registration pattern with the collation pattern by the amplitude suppression correlation method [*Nakajima: lines 59-67 of column 4, and 170 of Fig. 16, 23-25, and 27*]; vertical and horizontal shift amount measurement means for obtaining vertical and horizontal shift amounts between the pattern data from a position of a correlation peak obtained in a collation process by said second collation means [*Riesmann teaches a fingerprint correlation method and to better determine if the fingerprint does match the reference the fingerprint and referenced are vertically and horizontally aligned to provide a more accurate determination of the matching score. Reismann: 912 of Fig. 9 and lines 45+ of column 11 and lines 1-41 of column 12*]; rotational*vertical/vertical shift correction means for executing rotational shift and vertical/vertical shift correction for one of the registration pattern and the collation pattern on the basis of the rotational shift amount obtained by said rotational shift amount measurement means and the vertical and horizontal shift amounts obtained by said vertical and horizontal shift amount measurement means [*Riesmann teaches a fingerprint correlation method and to better determine if the fingerprint does match the reference the fingerprint and referenced are vertically and horizontally aligned to provide a more accurate determination of the matching score. Reismann: 912 of Fig. 9 and lines 45+ of column 11 and lines 1-41 of column 12*]; third collation means for, after the rotational shift and the vertical and horizontal shifts are corrected by said rotational*vertical/vertical shift correction means, collating the registration pattern with the collation pattern on the basis of a feature parameter defined in advance

[Reismann identifies in lines 25-33 of column 12 that the matching score is determined after the alignment has been completed, which in Nakajima corresponds to the collation of the reference and collation image, and as is evidenced in Nakajima the collation is done after the adjustment of the image has occurred. Thus it would have been obvious to one of ordinary skill in the art to collate the 2 images after the alignment was completed in order for determination of image matching to occur.]; and

collation determination means for determining that the registration pattern coincides with the collation pattern when at least one of collation results by said first collation means, said second collation means, and said third collation means indicates coincidence between the registration pattern and the collation pattern *[Nakajima: 170-0, and 170-7 through 170-9 of Fig. 28, the inclusion of the 3rd collation means has been shown to be obvious based on Reismann and Nakajima.].*

Instant claim 8: An apparatus according to claim 7, wherein said first polar coordinate system transformation means transforms the coordinate system of the registration Fourier N-dimensional pattern data that has undergone the amplitude suppression processing by said first amplitude suppression means into the polar coordinate system *[Nakajima: 167 of Fig. 16, 23-25, and 27], and*

said second polar coordinate system transformation means transforms the coordinate system of the collation Fourier N-dimensional pattern data that has undergone the amplitude suppression processing by said second amplitude suppression means into the polar coordinate system *[Nakajima: 168 of Fig. 16, 23-25, and 27].*

Instant claim 9: An apparatus according to claim 7, wherein
said first polar coordinate system transformation means adds a sign of a phase to the registration Fourier N-dimensional pattern data that has undergone the amplitude suppression processing by
said first amplitude suppression means, extracts only an amplitude component with the sign, and
then transforms the coordinate system of the registration Fourier N-dimensional pattern data into
the polar coordinate system [*Nakajima: 173 of Fig. 24*], and
said second polar coordinate system transformation means adds a sign of a phase to the collation Fourier N-dimensional pattern data that has undergone the amplitude suppression processing by
said second amplitude suppression means, extracts only an amplitude component with the sign,
and then transforms the coordinate system of the collation Fourier N-dimensional pattern data
into the polar coordinate system [*Nakajima: 174 of Fig. 24*].

Instant claim 10: An apparatus according to claim 7, wherein
said first amplitude suppression means removes a phase component of the registration Fourier N-dimensional pattern data and then executes the amplitude suppression processing for the registration Fourier N-dimensional pattern data [*Nakajima: 175 of Fig. 25*], and
said second amplitude suppression means removes a phase component of the collation Fourier N-dimensional pattern data and then executes the amplitude suppression processing for the collation Fourier N-dimensional pattern data [*Nakajima: 176 of Fig. 25*].

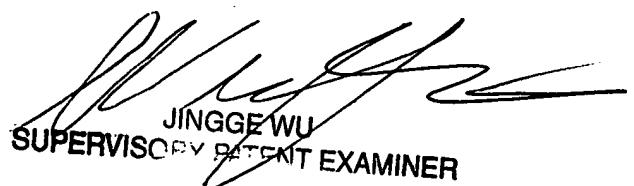
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Bloom whose telephone number is 571-272-9321. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu, can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nathan Bloom



JINGGE WU
SUPERVISORY PATENT EXAMINER